

WHAT IS CLAIMED IS:

1        1. A system for at least partially canceling noise, the system comprising:  
2            a member configured to be located in the vicinity of a noise producing object,  
3        wherein the member comprises a plurality of elements,  
4            at least some of the elements being configured to detect noise from the  
5        noise producing object, and  
6            at least some of the elements being configured to emit sound; and  
7            a controller configured to receive at least one signal indicative of noise  
8        detected by at least some of the elements and to send at least one signal so as to  
9        cause at least some of the elements to emit sound at a polarity substantially opposite  
10      to a polarity of the detected noise.

1        2. The system of claim 1, wherein the elements comprise piezoelectric  
2        material.

1        3. The system of claim 1, wherein the elements comprise at least one of  
2        ceramic and quartz.

1        4. The system of claim 1, wherein the elements substantially define at  
2        least one surface of the member.

1        5. The system of claim 1, wherein the elements are arranged in an array  
2        resembling a generally mosaic form.

1           6.     The system of claim 1, wherein the member is configured in the form of  
2     a panel.

1           7.     The system of claim 6, wherein the panel has a substantially planar  
2     shape.

1           8.     The system of claim 1, wherein the system comprises a plurality of  
2     members, at least some of the members being configured to be connected together  
3     so as to form an enclosure configured to be placed at least partially around the noise  
4     producing object.

1           9.     The system of claim 1, wherein the controller is configured to cause at  
2     least some of the elements to emit sound at substantially the same intensity and  
3     frequency as that of the detected noise.

1           10.    An arrangement comprising;  
2           the system of claim 1; and  
3           a noise producing object.

1           11.    The arrangement of claim 10, wherein the noise producing object  
2     comprises at least one of a pump, a motor, and a device for filling vessels.

1           12.    A system for at least partially canceling noise, the system comprising:

2           an enclosure configured to be placed at least partially around a noise  
3   producing object, wherein at least a portion of the enclosure comprises a plurality of  
4   elements,

5               at least some of the elements being configured to emit sound;

6               at least one noise detector configured to detect noise from the noise  
7   producing object; and

8               a controller configured to receive at least one signal indicative of noise  
9   detected by the at least one noise detector and to send at least one signal so as to  
10   cause at least some of the elements to emit sound at a polarity substantially opposite  
11   to a polarity of the detected noise.

1           13.   The system of claim 12, wherein the at least one noise detector  
2   comprises at least one of the elements.

1           14.   The system of claim 12, wherein the at least one noise detector is  
2   discrete from the elements.

1           15.   The system of claim 12, wherein the elements comprise piezoelectric  
2   material.

1           16.   The system of claim 12, wherein the elements comprise at least one of  
2   ceramic and quartz.

1           17.   The system of claim 12, wherein the elements substantially define at  
2   least one surface of the portion of the enclosure.

1           18. The system of claim 12, wherein the elements are arranged in an array  
2    resembling a generally mosaic form.

1           19. The system of claim 12, wherein the portion of the enclosure is  
2    configured in the form of a panel.

1           20. The system of claim 19, wherein the portion of the enclosure has a  
2    substantially planar shape.

1           21. The system of claim 12, wherein enclosure comprises a plurality of  
2    portions configured to be connected together.

1           22. The system of claim 12, wherein the controller is configured to cause at  
2    least some of the elements to emit sound at substantially the same intensity and  
3    frequency as that of the detected noise.

1           23. An arrangement comprising;  
2           the system of claim 12; and  
3           a noise producing object.

1           24. The arrangement of claim 23, wherein the noise producing object  
2    comprises at least one of a pump, a motor, and a device for filling vessels.

1           25. A system for at least partially canceling noise, the system comprising:

2           at least one noise detector configured to detect noise from a noise producing  
3   object;  
4           at least one sound emitter configured to emit sound;  
5           a controller configured to receive at least one signal indicative of noise  
6   detected by the at least one noise detector and to send at least one signal so as to  
7   cause the at least one sound emitter to emit sound at a polarity substantially  
8   opposite to a polarity of the detected noise; and  
9           an analyzer configured to analyze the noise detected by the at least one noise  
10   detector, the analyzer being configured to determine when noise detected by the at  
11   least one noise detector is indicative of at least one condition of the noise producing  
12   object.

1           26.   The system of claim 25, further comprising a member configured to be  
2   located in the vicinity of the noise producing object, wherein the member comprises  
3   a plurality of elements, at least one of the elements comprising the at least one  
4   sound emitter.

1           27.   The system of claim 26, wherein at least one of the elements  
2   comprises the at least one noise detector.

1           28.   The system of claim 25, further comprising an enclosure configured to  
2   be placed at least partially around the noise producing object, wherein at least a  
3   portion of the enclosure comprises a plurality of elements, at least one of the  
4   elements comprising the at least one sound emitter.

1           29. The system of claim 28, wherein at least one of the elements  
2   comprises the at least one noise detector.

1           30. The system of claim 25, wherein the analyzer is configured to compare  
2   the detected noise to information relating to at least one noise profile of the object.

1           31. The system of claim 25, wherein the analyzer is configured to provide  
2   output indicative of a possible failure associated with the object.

1           32. The system of claim 25, wherein the at least one sound emitter  
2   comprises piezoelectric material.

1           33. The system of claim 25, wherein the at least one sound emitter  
2   comprises at least one of ceramic and quartz.

1           34. The system of claim 25, wherein the at least one sound emitter and the  
2   at least one noise detector are arranged in an array resembling a generally mosaic  
3   form.

1           35. The system of claim 26, wherein the member is configured in the form  
2   of a panel.

1           36. The system of claim 35, wherein the panel has a substantially planar  
2   shape.

1           37. The system of claim 26, wherein the system comprises a plurality of  
2 members, at least some of the members being configured to be connected together  
3 so as to form an enclosure configured to be placed at least partially around the noise  
4 producing object.

1           38. The system of claim 25, wherein the controller is configured to cause  
2 the at least one sound emitter to emit sound at substantially the same intensity and  
3 frequency as that of the detected noise.

1           39. An arrangement comprising;  
2           the system of claim 25; and  
3           a noise producing object.

1           40. The arrangement of claim 39, wherein the noise producing object  
2 comprises at least one of a pump, a motor, and a device for filling vessels.

1           41. A method of at least partially canceling noise, comprising:  
2           detecting noise from a noise producing object;  
3           emitting sound at a polarity substantially opposite to polarity of the detected  
4 noise; and  
5           analyzing the detected noise so as to determine when the detected noise is  
6 indicative of at least one condition of the noise producing object.

1           42. The method of claim 41, wherein the analyzing comprises comparing  
2 the detected noise to information relating to at least one noise profile of the object.

1           43. The method of claim 41, further comprising providing output indicative  
2    of a possible failure associated with the object.

1           44. The method of claim 41, wherein the noise producing object comprises  
2    at least one of a pump, a motor, and a device for filling vessels.

1           45. The method of claim 41, wherein the emitted sound is at substantially  
2    the same intensity and frequency as that of the detected noise.